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United States Patent [19][11] **Patent Number:** **5,587,363****Henderson**[45] **Date of Patent:** ***Dec. 24, 1996**[54] **AMINOSUGAR AND
GLYCOSAMINOGLYCAN COMPOSITION
FOR THE TREATMENT AND REPAIR OF
CONNECTIVE TISSUE**[75] Inventor: **Robert W. Henderson**, Baldwin, Md.[73] Assignee: **Nutramax Laboratories, Inc.**,
Baltimore, Md.[*] Notice: The term of this patent shall not extend
beyond the expiration date of Pat. No.
5,364,845.[21] Appl. No.: **207,581**[22] Filed: **Mar. 14, 1994****Related U.S. Application Data**[63] Continuation-in-part of Ser. No. 40,936, Mar. 31, 1993, Pat.
No. 5,364,845.[51] **Int. Cl.⁶** **A61K 31/715; A61K 31/69**[52] **U.S. Cl.** **514/54; 514/62**[58] **Field of Search** **514/54, 62**[56] **References Cited****U.S. PATENT DOCUMENTS**

3,232,836	2/1966	Carlozzi et al.	167/65
3,371,012	2/1968	Furuhashi	167/59
3,683,076	8/1972	Rovati	424/180
3,697,652	10/1972	Rovati et al.	424/180
4,006,224	2/1977	Prudden	424/325
4,486,416	12/1984	Soll et al.	424/180
4,801,619	1/1989	Lindblad	514/825
4,983,580	1/1991	Gibson	514/2
5,141,928	8/1992	Goldman	514/54

OTHER PUBLICATIONSBucci, et al, Chondroprotective Agents Glucosamine Salts
and Chondroitin Sulfate, Townsend Letters for Doctors, Jan.
1994, pp. 52-58.Rejholec, V, Long Terms Studies of Antaostooarthritic
Drugs Co. pp. 35-53 assessment, Seminars in Arthritis &
Rheumatism, vol. 17, No. 2, Suppl. (1987).M. Adam et al., *Anzheim.-Forsch./Drug Res.*, 30(II)
(10):1730-1732 (1980).Morrison, et al, "Coronary Heart Disease and the Muco-
polysaccharides (Glycosaminoglycans)", C. C. Thomas,
Publisher, 1974, pp. 109-127.Drovanti et al, "Therapeutic Activity of Oral Glucosamine
Sulfate in Osteoarthritis; A Placebo-Controlled Double-
Blind Investigation", *Clin. Therap.* 3 (4) 260-272 (1980).Karzel et al, "Effects of Hexosamine Derivatives and Uronic
Acid Derivatives on Glycosaminoglycane Metabolism of
Fibroblast Cultures", *Pharmacol.* 5, 337-345 (1971).Setnikar et al, "Pharmakinetics of Glucosamine in the Dog
and in Man", *Arzneimittelforschung* 38 (2) 729-736 (1991).Vidal y Plana et al, "Articular Cartilage Pharmacology: I. In
Vitro Studies on Glucosamine and Non-Steroidal Anti-in-
flammatory Drugs", *Pharm. Res. Comm.*, 10 (6) 557-569
(1978).Anon., "Using a Chondroprotective Drug in Treating Dogs
With Osteochondrosis", *Veterin. Med.*, 130 (1993).Bucci, "Manganese: Its Role in Nutritional Balance",
Today's Chiropr., 17 (2) 23-28, 44 (1988).Bucci, "Glucosamine-A New Potent Nutraceutical For Con-
nective Tissues", *The Nutritional Supplement Advisor*, Jul.
1992.Banks, "Applied Veterinary Histology", Williams and
Wilkins Publisher, pp. 84-85 (1986)."Current Therapy in Equine Medicine", Robinson, Editor,
W. B. Saunders Co., Publisher, pp. 402-403 (1987).Garrison, Jr., et al, "The Nutrition Desk Reference", Keats
Publishing, Inc., pp. 70-71 (1985).Christensen, "Nutritional Support For Injury Rehabilitation
Specific Needs For The Three Phases of Rehabilitation",
Chiropractic Products, pp. 8-10, Sep. 12, 1993.Murray, "A Natural Treatment of Osteoarthritis", MPI's
Dyanmic Chiropractic, pp. 8-10, Sep. 12, 1993.Bucci, "Chondroproductive Agents Glucosamine Salts and
Chondroitin Sulfates", *Townsend Letters for Doctors*, pp.
52-54, Jan. 1994.Colgan "Glucosamine Saves Your Joints", *Muscular Devel-
opment, Fitness Health*, vol. 31, No. 8, p. 24 (Aug. 1994).*Primary Examiner*—Theodore J. Criares
Attorney, Agent, or Firm—Covington & Burling[57] **ABSTRACT**A therapeutic composition for the protection, treatment and
repair of connective tissue in humans and animals and a
method for the treatment of connective tissue in humans and
animals by the administration of the composition. The
composition includes aminosugars and glycosaminoglycans.**22 Claims, 3 Drawing Sheets**